Control Valve 23/26
Hygienic angle valve and straight-way valve

Size DN 25 ... DN 125
— With pneumatic actuator
  (three-way mixing valve or distributing valve upon request)

Hygienic versions
— 1.4404 stainless steel housing, suitable for CIP
  threaded process connection to DIN 11851
  or welded ends (other connections upon request)

Various internal trims
— Seat ring with metallic or soft seal
— Various Kvs values for every nominal size
— Linear or equal-percentage characteristic
  (3-level anti-cavitation cone upon request)

Integral positioner
— With follower pin for stroke measurement free of play
— Protected point for mechanical stroke measurement inside the yoke (complies with regulations for prevention of accidents)
— No external tubing required due to internal air channels
Control Valves 23/26
Hygienic Angle valves and straight-way valves

Construstion and mode of operation

The control valve 23/26 is a final control element for continuous control through variation of the media flow in tubes, for applications in the food and beverages industries requiring hygienic conditions. Actuation is through compressed air from a multi-spring diaphragm actuator.

Valve housings of different designs, nominal sizes and Kvs values are available, allowing you to select the appropriate valve for the relevant operating conditions. The type and size are defined using the operating data.

The straight-way valves DN 50-65-80 are available as single and dual conversion versions. For pressure drops of > 5 bar in the valve the dual conversion version should be used, exclusively.

For special applications the control valves are also available as three-way mixing or distributing valves. Additionally, control valves with a three-level cone are available on request for control tasks with a high pressure drop. These valves avoid cavitation or gas release from beverages containing carbon dioxide.

The multi-spring diaphragm actuator combines a compact design with a low height. The valve is actuated through compressed air of max. 6 bar, and returned by spring force. The controlling torque can be adapted to the application by using the appropriate actuator size (diameter) and number of return springs.

Based on the valve actuation, two directions of action are possible, which can also be changed at a later time:

- Air to open / spring force to close
- Air to close / spring force to open

The valve and the actuator need to be fitted with a positioner for controlling the position between 0 ... 100 %. The positioner and the diaphragm actuator form an integral unit. A follower pin allows for mechanical stroke measurement free of play. The point for stroke measurement is inside the yoke and protected by it. Therefore, this design complies with the regulations for the prevention of accidents. The air flow is guided through a channel bore inside the yoke.

The positioner ensures rapid and precise control until reaching the set point. The controlled position is not affected by friction in the packed gland or the adaptation of the control torque to variations of the media pressure.

Please refer to the relevant separate data sheet for details about the positioner.
Control Valves 23/26
Hygienic Angle valves and straight-way valves

Technical data

Valve

**Housing**
- Nominal size: DN 25...125 acc. to table, page 3
- Design: Angle or straight-way valve
- Connection: Threaded connection to DIN 11851 or welded ends
- Pressure: Differential pressure on cone acc. to table, page 3
  - Static press.: max. 25 bar (DN 25...50)
  - max. 20 bar (DN 65...100)
  - max. 10 bar (DN 125)
- Material: Housing 1.4404, sand blasted
  - Threaded connection 1.4301

**Seat**
- Material: 1.4404 (ring fixed in the housing undersection for angle valve, loosely installed ring for the straight-way valve)

**Cone**
- Parabolic shape, material 1.4571
- Linear or equal-percentage characteristic

**Kvs value**
- See table, page 3

**Setting ratio**
- 40 : 1

**Leakage rate (referred to the Kvs value)**
- < 0.01 % with metallic seal
- < 0.001 % for cone with soft seal

**Valve stem**
- Material: 1.4571

**Stem seal**
- Special packing ring made of ethylene propylene (EPDM) for -10 ... 135 °C

**Mounting**
- Threaded connection or welded ends, freely insertable in pipe (no mounting on actuator!)
  - Actuator vertically upwards (standard position)

Actuator

**Actuator**
- Multi-spring diaphragm actuator of stainless steel 1.4301
- Size Ø 270 (MF1) or 400 (MF3) with rubber diaphragm
- Number of springs: 3 - 6 - 12 (see table, page 3)
- Direction of action:
  - Air to open / spring force to close
  - Air to close / spring force to open
- With stroke display
- Max. operating pressure 6 bar, temperature -20... +80 °C

**Operating range**
- See specifications for positioner (separate data sheet)

**Actuator stem**
- Stainless steel 1.4122

**Yoke**
- Stainless steel 1.4541

Special options

**Housing**
- Housing and seat of material 1.4571 (on request)
- Connection as flange or other thread standard (on request)
- Straight-way valve with 3-level cone (on request)
- Three-way mixing or distributing valve (on request)

**Cone**
- Cone with soft seal of ethylene propylene (EPDM) for -10 ... 135 °C

**Actuator**
- Positioner, attached and set
- Integral mounting, stroke pickup inside
  (refer to separate data sheet for ordering details)

Functional diagram

![Diagram of Hygienic Angle valves and straight-way valves](image-url)
## Overview of DN · Kvs value · actuator size · differential pressure at cone

<table>
<thead>
<tr>
<th>DN (mm) Stroke (mm)</th>
<th>Actuator size</th>
<th>Kvs</th>
<th>Differential pressure at cone (bar)</th>
<th>Number of springs</th>
<th>Min. supply air pressure (bar) for positioner</th>
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<tr>
<td></td>
<td></td>
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## Ordering Information

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### Design and Size

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<td>DN 100</td>
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| Straight-through valve |
| DN 25 | 1 2 0 1 | 1641,00 | 40 |
| DN 40 | 1 2 0 2 | 1798,00 | 40 |
| DN 50 | 1 2 0 A | 1961,00 | 40 |
| DN 65 | 1 2 0 B | 2299,00 | 40 |
| DN 80 | 1 2 0 C | 2533,00 | 40 |
| DN 100| 2 2 0 3 | 2623,00 | 40 |
| DN 125| 2 2 0 4 | 3124,00 | 40 |

### Other Designs or Sizes (DN) on Request

- Process connections with welded ends
  - with threaded connections to DIN 11851 (size DN 25) Z
  - with threaded connections to DIN 11851 (size DN 40) B
  - with threaded connections to DIN 11851 (size DN 50) C
  - with threaded connections to DIN 11851 (size DN 65) D
  - with threaded connections to DIN 11851 (size DN 80) E
  - with threaded connections to DIN 11851 (size DN 100) F

### Kvs Value (Observe Dependence on Nominal Size)

- Kvs 1.0 (for DN 25) A
- Kvs 1.6 (for DN 25) B
- Kvs 2.5 (for DN 25) C
- Kvs 4.0 (for DN 25 - 40) D
- Kvs 7 (for DN 25 - 40) E
- Kvs 11 (for DN 40 - 50) F
- Kvs 18 (for DN 40 - 50 - 65) G
- Kvs 26 (for DN 50 - 65 - 80) H
- Kvs 43 (for DN 65 - 80 - 100) I
- Kvs 68 (for DN 80 - 100) J
- Kvs 100 (for DN 100 - 125) K
- Kvs 150 (for DN 125 - 162) L
- Kvs 260 (for DN 125 - 162) M

### Internal Trim (Material and Characteristic)

- Seat and cone of stainless steel 1.4571
- Linear characteristic 1
- Equal percentage characteristic 4

1) Straight-through valves with single plug guidance (top only)
2) Straight-through valves with double plug guidance (top + bottom)
### Ordering information

**Hygienic control valve**

**Variant digit No.:**

<table>
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<th>Catalog No.</th>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>V13841-</td>
<td></td>
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</tbody>
</table>

**Multi-spring diaphragm actuator**

*(direction of action only “air to open/spring to close”)*

- **Multi-spring diaphragm actuator, version B**
  - **Direction of action:** "air to open/spring force to close"

  - **Size Ø 270 mm for stroke of 20 mm and DN 25**
    - with 3 springs: A 0
    - with 6 springs: B 0
  - **Size Ø 270 mm for stroke of 20 mm and DN 40 - 50**
    - with 3 springs: C 0
    - with 6 springs: D 0
  - **Size Ø 270 mm for stroke of 30 mm and DN 65 - 80**
    - with 3 springs: E 0
    - with 6 springs: F 0
  - **Size Ø 270 mm for stroke of 30 mm and DN 100**
    - with 3 springs: G 0
    - with 6 springs: H 0
  - **Size Ø 400 mm for stroke of 30 mm and DN 65 - 80**
    - with 3 springs: I 0
    - with 6 springs: J 0
    - with 12 springs: K 0
  - **Size Ø 400 mm for stroke of 30 mm and DN 100**
    - with 3 springs: L 0
    - with 6 springs: M 0
    - with 12 springs: N 0
  - **Size Ø 400 mm for stroke of 60 mm and DN 125**
    - with 3 springs: P 0
    - with 6 springs: R 0
    - with 12 springs: S 0
(Ordering information)

<table>
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<tr>
<th>Hygienic control valve</th>
<th>Variant digit No.</th>
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<th>2</th>
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</tbody>
</table>

**Multi-spring diaphragm actuator (direction of action reversible)**

Size Ø 270 mm for stroke of 20 mm and DN 25
- Direction of action: Air to open/spring force to close, with 3 springs 0 A
- Air to open/spring force to close, with 6 springs 0 B
- Air to close/spring force to open, with 3 springs 0 C

Size Ø 270 mm for stroke of 20 mm and DN 40 - 50
- Direction of action: Air to open/spring force to close, with 3 springs 0 D
- Air to open/spring force to close, with 6 springs 0 E
- Air to close/spring force to open, with 3 springs 0 F

Size Ø 270 mm for stroke of 30 mm and DN 65 - 80
- Direction of action: Air to open/spring force to close, with 3 springs 0 G
- Air to open/spring force to close, with 6 springs 0 H
- Air to close/spring force to open, with 3 springs 0 I

Size Ø 270 mm for stroke of 30 mm and DN 100
- Direction of action: Air to open/spring force to close, with 3 springs 0 J
- Air to open/spring force to close, with 6 springs 0 K
- Air to close/spring force to open, with 3 springs 0 L

Size Ø 400 mm for stroke of 30 mm and DN 65 - 80
- Direction of action: Air to open/spring force to close, with 3 springs 0 M
- Air to open/spring force to close, with 6 springs 0 N
- Air to open/spring force to close, with 12 springs 0 P
- Air to close/spring force to open, with 3 springs 0 R

Size Ø 400 mm for stroke of 30 mm and DN 100
- Direction of action: Air to open/spring force to close, with 3 springs 0 S
- Air to open/spring force to close, with 6 springs 0 T
- Air to open/spring force to close, with 12 springs 0 U
- Air to close/spring force to open, with 3 springs 0 W

Size Ø 400 mm for stroke of 60 mm and DN 125
- Direction of action: Air to open/spring force to close, with 3 springs 0 X
- Air to open/spring force to close, with 6 springs 0 Z
- Air to open/spring force to close, with 12 springs 0 Y
- Air to close/spring force to open, with 3 springs 0 1

Add supplementary Code Nos. to the Catalog No.

The control valves 23/26 with a multi-spring diaphragm actuator must be used together with a positioner.

Choice and ordering information to be taken from separate data sheet.

The following mounting situations have to be considered:

- a) Integral mounting (complies with regulations for prevention of accidents because of protected stroke transmission)
- b) In-yoke-tubing of the air connection >positioner/actuator< (only with "air to open/spring force to close")
- c) Outer tubing of the air connection >positioner/actuator< (only with "air to close/spring force to open")
### Options

#### Special options

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<tr>
<th>Seat and cone</th>
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<td>Cone with ethylene-propylene compressible seal (EPDM)</td>
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<td>(for DN 25)</td>
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<td>(for DN 40)</td>
<td>434</td>
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<td>(for DN 50)</td>
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<td>(for DN 65)</td>
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<td>(for DN 100)</td>
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<td>(for DN 125)</td>
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#### Gland

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<td>Scavening air connector, single (for DN 80)</td>
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<td>Scavening air connector, double (for DN 100)</td>
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#### Scavening air connector on stem seal

![Diagram of scavening air connector on stem seal]

**Specifications of scavening air connector**

- Max. pressure: 1 bar
- Max. temperature: 135 °C
### Hygienic Angle valves and straight-way valves

#### Dimensions and weights

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<thead>
<tr>
<th>DN</th>
<th>RD</th>
<th>Stroke</th>
<th>Actuator Type</th>
<th>Ø D</th>
<th>H</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>F</th>
<th>FR</th>
<th>F1</th>
<th>F2</th>
<th>Weld.</th>
<th>Thread</th>
<th>Weld.</th>
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